

BEST AVAILABLE COPY

system is especially valuable for transient travelers in territories such as in a convention hall, amusement part, shopping mall, cruise ship, etc. This system is also useful to track highly transitory inventory.

IN THE DISCUSSION OF PRIOR ART

Add the following paragraph to the end of section:

Heller (U.S. Patent Number 6,154,139) discloses a method and system utilizing both the radio frequency (RF) and infrared (IR) within a tracking environment. Heller's invention depends on the physical nature of IR signal to determine the location of tracked subject. Each badge (mobile unit) initiates both RF and IR transmission at a timed interval and can be prompted to do so when a button is pushed. A method is disclosed to switch between different communication modes, thereby conserving energy and extending battery life. Each badge is encoded with a fixed identification data, which is included in transmission.

IN THE CLAIMS

1. (Amended) In a locale with a plurality of probes interconnected to a computing device, a plurality of mobile devices, and means to enter messages to and to retrieve information on said mobile devices, a method of position tracking and communication comprising the steps of:
 - (a) placing said probes at key locations in said locale ~~with non-overlapping coverage areas~~;
 - (b) modeling said locale with site-specific information using a network of states and transitions with probabilities;
 - (c) deploying said mobile deviceunits for position tracking and communication;
 - (d) encoding each mobile device with an identifier;
 - (e) sending out beacons by said probes periodically;
 - (f) responding by said mobile deviceunits upon receiving said beacon from said probes;
 - (g) gathering the whereabouts of said mobile deviceunits to feed to said computing device;
 - (h) calculating the most probable location of said mobile device using said whereabouts of said mobile device and said network of states and transitions with probabilities;
 - (i) notifying said mobile device with messages; and
 - (j) updating possible change to said site specific information.
2. (Amended) In a method of position tracking and communication of claim 1, said deploying said mobile deviceunits comprising the step of,
 - (a) calculating the desired life span of each of said mobile deviceunits;

BEST AVAILABLE COPY

- (b) equipping said mobile deviceunits with limited battery power sources corresponding to said desired life span; and
- (c) attaching said mobile deviceunit to person or object to be tracked.
- 3. (Amended) In a method of position tracking and communication of claim 1, said encoding each mobile device with an identifier comprising the step of;
 - (a) calculating the necessary number of mobile deviceunits in the locale;
 - (b) separating said identifier into two parts, one common part for uniqueness within said locale and one group part for supplementary use;
 - (c) communicating with said probes with the said common part; ~~and~~
 - (d) sending said group part of said identifier upon request from said probes; and
 - (e) reusing said identifier when tag with said identifier has run out of batter.
- 4. (Amended) In a method of position tracking and communication of claim 1, said calculating the most probable location of said mobile device comprising the step of;
 - (a) retrieving the current location of said mobile deviceunit;
 - (b) retrieving the past history of said mobile deviceunit; and
 - (c) mapping said current location and said history of said mobile deviceunit with site specific information using said network of states and transitions with probabilities.
- 5. (Amended) In a method of position tracking and communication of claim 1, said notifying said mobile device with messages comprising the step of;
 - (a) calculating said most likely location of said mobile deviceunit;
 - (b) calculating the most appropriate messaging device nearby; and
 - (c) sending said message to said messaging device.
- 6. (Amended) In a method of position tracking and communication of claim 1, said updating possible change to said site specific information comprising the step of;
 - (a) retrieving current location of said mobile deviceunit;
 - (b) calculating for discrepancies with said site specific information;
 - (c) retrieving history data on similar occurrence(s); ~~and~~
 - (d) alerting system operator of said discrepancies; and
 - (e) changing said network of states and transitions with probabilities.

7. (Amended) In a locale with a plurality of probes interconnected to a computing device, a plurality of mobile devices, and means to enter messages to and to retrieve information on said mobile devices, an apparatus for position tracking and communication comprising:
- (a) configuring means to place said probes at key locations in said locale ~~with non-overlapping coverage areas~~;
 - (b) modeling means to model said locale with site specific information using a network of states and transitions with probabilities;
 - (c) installing means to deploy said mobile device units for position tracking and communication;
 - (d) installing means to encode each of said mobile devices with an identifier;
 - (e) probing means to send out beacons by said probes periodically;
 - (f) responding means by said mobile device units upon receiving said beacon from said probes;
 - (g) collecting means to gather the whereabouts of said mobile device units to feed to the central data collection device;
 - (h) determining means to calculate the most likely location of said mobile device;
 - (i) messaging means to notify said mobile device with messages; and
 - (j) updating means to calculate possible change to said site specific information.

REMARKS

The claims pending are claims 1-7. Claims 1-7 have been amended to more definitely recite the claimed inventions.

For convenience applicant will respond to the Office Action of Examiner Smith in numbered sections corresponding to the numbers in the Office Action.

1. Examiner Smith has rejected 1-7 under 35 U.S.C. 103(a) as being unpatentable over Heller (U.S. Patent Number 6,154,139).

Heller discloses a method and system utilizing both the radio frequency (RF) and infrared (IR) within a tracking environment. Heller's invention relies on the physical nature of IR signal to determine the location of tracked subject. Each badge (mobile unit) initiates both RF and IR transmission at a timed interval and can be prompted to do so when a button is